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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,429	01/23/2004	Gerhard Schneider	19414-07592	6805

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EXAMINER
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SCOTT JR, THOMAS E

ART UNIT	PAPER NUMBER
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2609

MAIL DATE	DELIVERY MODE
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05/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/763,429	Applicant(s) SCHNEIDER ET AL.	
	Examiner Thomas E. Scott Jr	Art Unit 2609	

**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of the claim of benefit of priority submitted under 35 U.S.C. 119(e), and has been noted in the record in the file.

### ***Information Disclosure Statement***

2. The U.S. Patent Document references listed on the Information Disclosure Statement filed on January 23, 2004 have been considered by examiner; see attached PTO-1449.

### ***Drawings***

3. Figures 1, 2, and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 8 - 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Chiu (U.S. 2003/0137460 A1).

- As to claim 8, Chiu teaches an apparatus for use in a cordless device  
(wireless keyboard – 201), comprising:
  - a means (antenna wire – 240) for propagating electromagnetic energy (see [0032]) through coupling to a radio transmitter (wireless transmission circuit - 210); and
  - means (ground – 220) for electrically grounding configured to couple to a radio frequency transmission system (RF module – 202) (see [0031]), the means (ground – 220) for electrically grounding printed on a membrane of a keyswitch matrix system (three portion system - a keyswitch pad 234, a keyswitch printed circuit membrane 232, and a metallic plate 230) and coupled to the means for propagating (see [0031] and [0032]).
- As to claim 9, Chiu teaches a loop antenna (241 – see [0041]).

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- As to claim 10, Chiu teaches the radio frequency transmission system is one of a transmitter (wireless transmission circuit - 210) - (see [0041]).
- As to claim 11, Chiu teaches a keyswitch matrix system is within a keyboard (wireless keyboard – 201).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-7 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu ('460) in view of Quintero Illera, et. al. (U.S. 2004/0217916 A1) which is the same disclosure as WO 03/023900 A1.

- As to claim 1, Chiu teaches an antenna component (antenna wire – 240 - see [0032]) further configured for electromagnetic propagation of a signal (conventional signal from keys pressed on a keyswitch PCM) from the radio transmitter (wireless transmission circuit – 210); and a metallized membrane (ground plate – 230) of a keyswitch matrix system (a keyswitch pad 234, a keyswitch printed circuit membrane 232, and a metallic plate 230). Chiu does

not teach a first geometric shape printed with conductive ink. Quintero Illera teaches a metallized membrane (space-filling ground plane – 43 of a patch antenna system - 41 – see [0052 of Quintero Illera]) having a surface that comprises a first geometric shape (space-filling curve – [0050]) printed with conductive ink (see [0054]) configured to couple with the antenna component. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have added the geometric shape taught by Quintero Illera to the cordless device of Chiu because the geometry of the surface of Quintero Illera would benefit from reduced size, enhanced bandwidth, compared to antennas with a solid ground plane. (see [0016-0022] of Quintero Illera).

- As to claim 2, Chiu does not teach the first geometric shape printed on the metallized membrane comprises a ground plane. Quintero Illera teaches a metallized membrane (space-filling ground plane – 43 of a patch antenna system - 41 – see [0052 of Quintero Illera]) having a surface that comprises a first geometric shape (multi-level and space filling - Fig. 5B with a symmetrical or quasymmetrical configuration – see [0055]), and the unique ground plane shape is coupled to the many available polygonal shapes for the antenna patch/radiating element – 42) utilizing known techniques (see [0052]).
- As to claim 3, Chiu teaches a loop antenna - 241 (see [0041]).
- As to claim 4, Chiu teaches the signal (radio signals representing input keys – well known in prior art) corresponds to a pressing of a key (input key), the

signal being generated in the keyswitch matrix system by conductive traces electrically coupling upon the pressing of the key (see [0007]).

- As to claim 5, Chiu teaches the metallized membrane is one of a top (metallic plate – 230), a middle, or a bottom membrane in a three layer keyswitch matrix system (a keyswitch pad 234, a keyswitch printed circuit membrane 232, and a metallic plate 230) - (see [0032]).
- As to claim 6, note the discussion of claim 1 above. Chiu does not teach a second metallized membrane having a second geometric shape, yet Quintero Illera does teach a second metallized membrane (ground plane) having a second geometric shape (elliptical) and configured to form at least part of an antenna (see Fig. 6 of Quintero Illera).
- As to claim 7, Chiu teaches the cordless device being a keyboard (wireless keyboard – 201).
- As to claim 12, Takahashi teaches antenna components on a membrane keyswitch assembly having a plurality of membranes (one, two, or three-layer type membranes - see [0039]), the method comprising: printing with an electrically conductive printing substance a geometric shape (electrically conductive pattern – P1, P2, and P3- see [0046] and Fig. 1) on a surface of one of the plurality of membranes. Takahashi does not teach the geometric shape forming a ground plane; and electrically coupling the printed geometric shape with one or more antenna components. Quintero Illera teaches the geometric shape forming a ground plane (Fig. 6 – various shapes shown

utilizing a space-filling curve); and electrically coupling the printed geometric shape with one or more antenna components (see [0050], [0052], and [0054]). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have added the geometric shape taught by Quintero Illera to the cordless device of Takahashi because the geometry of the surface of Quintero Illera would benefit from reduced size, enhanced bandwidth, compared to antennas with a solid ground plane. (see [0016-0022] of Quintero Illera).

- As to claim 13, Takahashi teaches the printing including screen printing (see [0046]).
- As to claim 14, Quintero Illera teaches the electrically conductive printing substance is a metallic ink (conductive ink – see [0054] of Quintero Illera).
- As to claim 15, Quintero Illera teaches a continuous polygonal surface (several quadrangular surfaces/polygons – see [0046] of Quintero Illera).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

- Lee, et al. (U.S. 2002/0138162 A1) discloses an antenna for a wireless device.



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- Maoz, et al. (U.S. 2004/0125029 A1) discloses enhancing operation of a low-frequency antenna.

### ***Inquiries***

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Thomas E. Scott, Jr. whose telephone number is (571) 270 1714. The examiner can normally be reached on Monday to Friday 7:30 AM – 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272 – 7772. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of this application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217 – 9197 (toll free). If you would like assistance from a USPTO Customer Service Representative or access to the

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automated information system, please call (800) 786-9199 (IN THE USA OR  
CANADA) or (571) 272 – 1000.

TESJR

Thomas E. Scott, Jr.

Examiner

30 April 2007



CHANH D. NGUYEN  
SUPERVISORY PATENT EXAMINER